**1.4 – Horizontal and Vertical Distances**

Name:\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_

**Lesson Focus: Mathletes will be able to describe movement on a Cartesian plane using the terms horizontal and vertical. We will learn how to determing the distance between two points.**

**Recall these definition from last day:**

**Transformation:**  Moving a shape

**Translation:**  Sliding a shape along straight line

**Reflection:**  A mirror image of a shape

**Rotation:** Turned about a point which is called the center of rotation

**New definitions:**

**Horizontal:**

**Vertical:**

Did you know….

* Horizontal and vertical distances can be easily measured on a Cartesian plane
* You simply need to count the number of squares horizontally and vertically between the two points

Let me show you what I mean…

* There is a Zebra on our playground and kids aren’t too sure why it’s there. Several students make there way over to the zebra to check him out. Determine the distance away each student is from the Zebra. What are the horizontal and vertical distances from Z to each of the points on the plane?

Abby

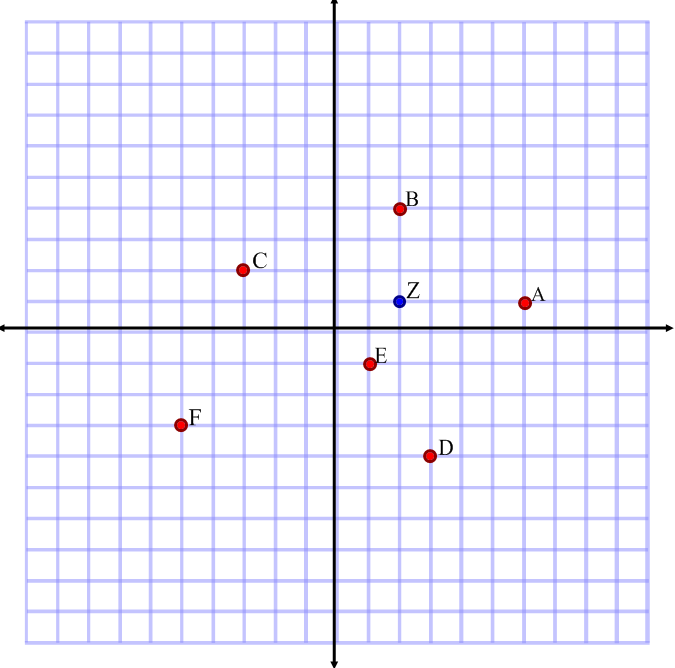
Brandon

Curtis

David

Everett

Fynn

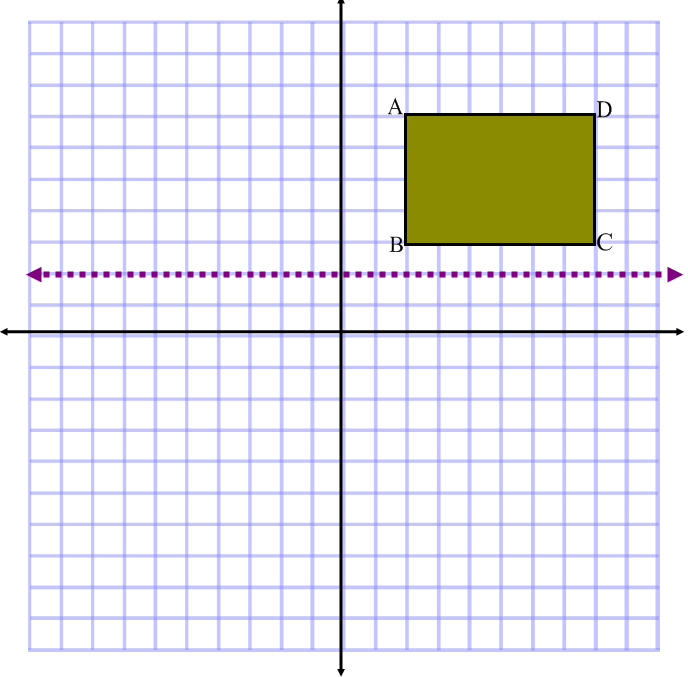


**Multiple Transformations:**

* **Often transformations can be combined to produce a new image**
* **For instance, an object may be rotated and then translated to produce a new image**

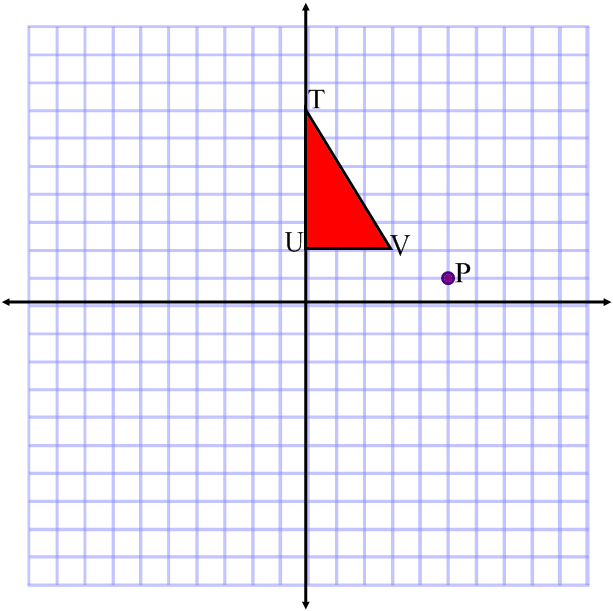
**Example of multiple transformations:**

* **Rectangle ABCD is reflected in the line shown and then translated 2 left, 4 down**

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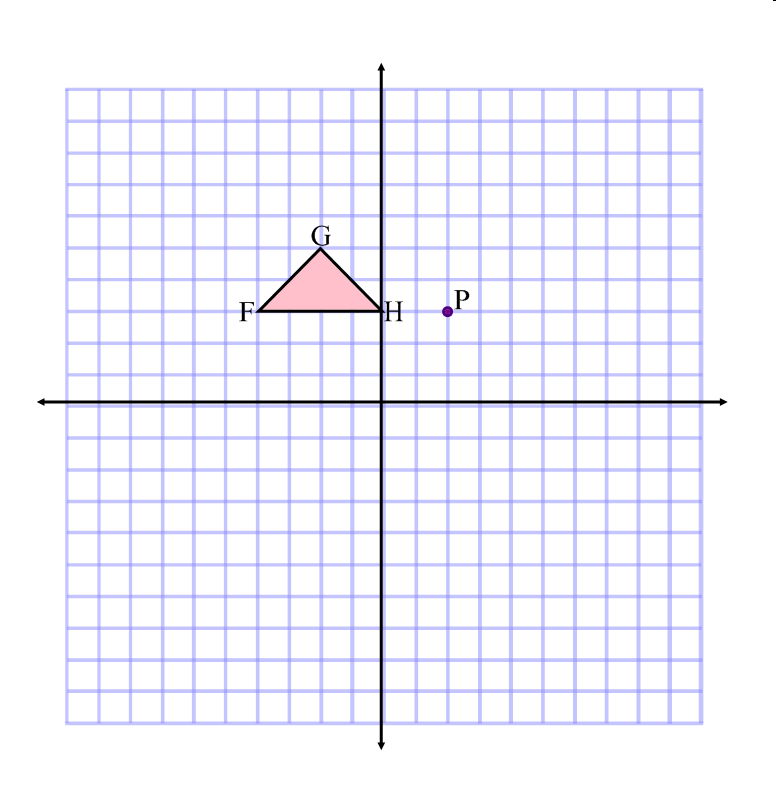
**Another brilliant example:**

* **Triangle TUV is rotated 90o counterclockwise around point P, and then reflected in the *y*-axis**

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**Try this one!**

* **Triangle FGH is rotated 180o clockwise around point P and then translated 2 up, 3 left**

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**Now try one of your own and describe translation:**

** **

Yours Your friend’s

Description: Description: